

JAN 9 1989

ISD NEWS AND VIEWS

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A PUBLICATION OF THE INFORMATION CENTER BUREAU
MONTANA DEPARTMENT OF ADMINISTRATION
INFORMATION SERVICES DIVISION

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*My name,
I don't need
to see - give
to Darlene
Thanks
Kara
5/11/85*

THIS ISSUE CONTAINS:

EASY PROCLIB

CROSSTALK XVI

MICRO-MAINFRAME LINK

SURGE PROTECTORS

PICA POINTS

PLEASE RETURN

*Darlene -
I'd prefer your
answer the questionnaire
on page 1 - my answer
would say only - don't
know, can't tell, not in English
language" - also would you
send each time and all send
me whenever there is
anything I need to
know. Thanks
Kara
5/11/85*

1. The first part of the document is a list of the names of the persons who have been appointed to the various offices of the city of New York.

2. The second part of the document is a list of the names of the persons who have been appointed to the various offices of the city of New York.

3. The third part of the document is a list of the names of the persons who have been appointed to the various offices of the city of New York.

Isd

News And Views

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ATTACHED : CHAPTER 1-- PICA POINTS

DATE: APRIL 8, 1985

MAINFRAME SECTION

NEWS AND VIEWS SURVEY

We need your help! In order to more effectively meet the needs of our audience, please complete the following survey. Please send completed surveys to:

Teri Lundberg
Information Center
Room 25, Mitchell Building
Helena, Mt 59620

- Are the articles too general or too specific?
- What are other types of articles are you interested in?
- How could News and Views be improved?
- Do you prefer a monthly, bimonthly, or quarterly publication?

Agency: _____

Current Position: ☐ Managerial ☐ Data Processing Professional
 ☐ Professional ☐ Clerical

COMPLETE BILL HISTORY

Complete bill/resolution information from the bill status database can be printed by submitting a job from your TSO library. To use this system, you must know the number of the bill/resolution. The number consists of six characters (HB, SB, HJ, SJ, SR, HR plus a four digit number). A daily report which includes these is available from the Information Desk in the Capitol.

Here are the steps to produce complete bill history:

- Step 1 -- Log on to TSO.
- Step 2 -- Copy "F00.BILL.INFO(BILLALL)" into your TSO library and name it "BILLALL".
- Step 3 -- Go into member "BILLALL". Make the necessary JCL changes including jobname, account number, user number, and box number.
- Step 4 -- Go to line 40. Line 40 and line 41 are examples of where and how your data should look. Following the format of lines 40 and 41, type in the bills/resolutions you are interested in. Delete the lines you are not interested in.
- Step 6 -- Submit the job.

Requests for more information or problems with this should be directed toward Teri Lundberg in the Information Center.

MICRO-MAINFRAME LINK

ISD plans to evaluate several micro-mainframe link products during the next couple of months. A definite schedule hasn't been set yet, but it looks like the first product will arrive about April 15 with additional ones arriving each week or two after that. The evaluation should be complete in June. These products have a variety of features including:

- file transfer between the mainframe and micros (both ways)
- translation between EBCDIC and ASCII
- access to several mainframe file types (IDMS, VSAM, sequential)
- reformatting to several micro file types (DIF, Lotus, dBASE)
- virtual diskettes on mainframe (expanded capacity, easy backup)

These products will be brought in for testing and evaluation by the Information Center staff. They will be available for use on a limited basis while they are here. If you have an interest in these products and would like some input in the evaluation and selection process, contact Randy Holm in the Information Center at 444-2973.

EASYPROCLIB COMING

EasyPROCLIB, a software package that allows data center users to catalog, maintain, and execute JCL from private procedure libraries, has received final acquisition approval. This package will provide better security and control of JCL procedure maintenance for agency programming staffs.

Current plans are to move all procedures now stored in statewide or "common" libraries like SYS1.RUNLIB to procedure libraries controlled by the agencies. EasyPROCLIB is scheduled to be made available for general use on June 3. Further details on schedules, training sessions, and how to use EasyPROCLIB will be made available in the coming weeks.

SCRIPT UPDATE

There has been some concerns expressed about unordered lists while using SCRIPT. If using DSMPROF3 (not using the FDP) you get grey blocks.

We can't change the original profile in case we run across any problems later. So we have created another profile. It is called DSMPROF4. With this profile you will get o's (open bullets) instead of the blocks.

If you would prefer the o's, specify DSMPROF4 instead of DSMPROF3.

In the future, if anyone would like to see something else changed contact Colin Jenkins or the Text Processing Unit (2860). We can't promise the change will be made but we will try.

MICROCOMPUTER SECTION

IBM DISPLAYWRITE 3 AVAILABLE

DisplayWrite 3 (word processing software for microcomputers) is now available from IBM. DisplayWrite 3 supports the creation, revision, and printing of general correspondence, multiple page documents, technical documents (including the use of special symbols), and statistical tables. Automatic footnote processing and automatic outline/section numbering are among the enhancements provided for document preparation. Data from a variety of DOS ASCII files may now be merged with text documents for applications such as automatic letters. Spelling verification is also available.

Displaywrite 2 can be upgraded to DisplayWrite 3. The cost is \$50.00. Forms are available by contacting Sheila or Pat in the Information Center at 444-2973.

PORTABLES

As agencies rely on microcomputer technology the need to have access to data stored on the micros will increase. This need will extend to employees who are away from their office.

The portable microcomputer market is one of the most rapidly changing markets in the computer field. Portable microcomputers typically fall into one of two classes. The first class can run most of the same software and often cost as much as desktop computers. The second class is less expensive and runs less compatible software. Each of these machines has advantages and disadvantages.

When selecting a portable you should carefully examine your needs and the limitations of the equipment you are considering. The limitations of portable microcomputers are generally in the areas of: screen size and quality, disk space, portability, software and hardware compatibility, and communications.

For help in selecting a portable micro that meets your needs, contact Dave Marshall in the the Information Center Bureau at 444-2973.

CROSSTALK XVI

CROSSTALK XVI is a data communications program that allows microcomputers to communicate with Department of Administration's IBM 3033 mainframe computer and other devices. Microcomputers using CROSSTALK XVI can emulate popular terminals including the IBM 3101, the DEC VT-100, and the Televideo 910 or 920 series.

State agencies may obtain and receive support for CROSSTALK XVI as described on the following page:

Support Services

1. Purchase Support

Beginning in May, the Information Center will stock CROSSTALK XVI. The price is \$125.00.

2. Installation Support

Installation of CROSSTALK XVI is included in the purchase price.

3. Disk Support

All disk formats from the Microstuf Corporation will be supported.

4. Consulting Support

Demonstrations of CROSSTALK XVI will be available. Other services include feasibility recommendations and problem resolution.

5. Training

The Information Center will provide training for CROSSTALK XVI through the ISD training program. A class on CROSSTALK XVI will be held on May 13, 1985.

Other Services

All requests for consulting, training, advising, or installing any other asynchronous communications package will be handled by the Information Center on a time permits basis.

After reviewing eight asynchronous communications packages, the choice of CROSSTALK XVI as an asynchronous communications package was based on its wide functionality and reliability. CROSSTALK XVI's features include its ability to allow microcomputers to emulate a variety of terminals, its file transfer protocols, and its easy to read manual.

If you would like the configuration to access the Department of Administrations' IBM 3033, please contact Dave Marshall or Teri Lundberg in the Information Center at 444-2973.

PC TECH JOURNAL

The Information Center is subscribing to PC Tech Journal. It is a highly technical but good reference for programmers using IBM Personal Computers. It contains a lot of information on programming languages and tools like linkers, debuggers, assemblers... etc. The Information Center does not provide microcomputer programming expertise but will assist programmers in locating tools or information.

SURGE PROTECTORS

The Information Center has been involved in substantial investigation of computer power protection equipment. Some surge protectors do not indicate when you no longer have protection. Others require skilled testing to verify if they are working. Require your vendor to tell you how to determine if your surge protector is working.

MANAGERS, PROFESSIONALS, AND KEYBOARDING SKILLS

It was not long ago that keyboarding skills were needed only by secretaries, clerks, and data processing personnel. That was before the advent of the personal computer and the availability of professional productivity tools at computer terminals. Now managers and professionals are preparing budgets, writing reports, and producing analyses using computers. These people are not data processing professionals and don't need computer programming skills to use computerized productivity tools. They do need the ability to use a keyboard effectively, however. The lack of keyboard skills can defeat the whole purpose of providing managers and professionals with a tool intended to help them get more work done in a shorter span. Comprehensive training would improve keyboard proficiency, however, most managers and professionals cannot set aside the time it often takes for formal training. An alternative is for the manager or professional to use one of the available software packages which are interactive on a microcomputer and allow individual scheduling. Serious-minded individuals who find the time and maintain the discipline of training with one of these software packages will benefit by improved keyboard speed and accuracy. A keyboard tutorial is available for loan through the Information Center. Please call 444-2973 and ask for one of the training officers if you are interested.

TERM CONTRACT ADDITION

An 8100 PC Adapter Kit has been added to the IBM PC Term Contracts. The price is \$1147.00. This package allows IBM PC's or compatibles to communicate directly with IBM 8100 series mini-computers. The IBM part number is 6113-477. For more information, contact the Resource Management Unit at 444-2860.

GENERAL NEWS

INFORMATION PROCESSING '85

Information Processing '85 presented by AISP (Association of Information Systems Professionals) will be held in Great Falls on April 23, 1985 at the Heritage Inn. Workshops include Ergonomics, Trends and Career Development in Information Processing, and Stress and Time Management. The keynote address will be on "Positive Image Building" by Dick Anderson from the United Learning Institute. For more information including fees contact:

AISP
P.O. Box 148
Great Falls, MT 59403.

ERGONOMICS

Ergonomic design attempts to fit people to jobs and jobs to people. The following checklist outlines how a computer workstation should be assembled for comfort and productivity:

- Keyboard and monitor
- Chairs
- Lighting
- Noise levels (largely related to printers)

The following is a worksheet to help you evaluate your ergonomic design.

KEYBOARD AND MONITOR

- [] Arm position--upper arm should be nearly vertical, lower arm should be nearly horizontal. The angle formed between upper and lower arm should be about 90 degrees.
- [] The hand may be slightly tilted up to allow fingers free travel over the core of the keyboard.
- [] The monitor should be placed at or slightly below eye level. A tilting and swiveling base accommodates different operators.
- [] Images on the monitor should be sharp and glare-free.
- [] Keyboard and monitor height should be adjustable.
- [] Sufficient workspace is available for materials being used and reference materials. A document holder is provided to ease data entry.

CHAIRS

- [] Seat pan and backrests are upholstered and covered with a perspiration-absorbing and heat dispersing material.
- [] Seat cushions and backrests should provide firm support--20mm of compression is about right.
- [] Backrests should adjust up and down, and backwards and forwards.
- [] Seat pan is adjustable up and down and should transfer user's weight through the buttocks--not the thighs.
- [] Thighs should be supported on the chair.
- [] The front of the seat cushion should be of a "waterfall" design to promote circulation.
- [] Feet should rest flat on the floor or on a footrest.
- [] Casters should allow easy seated mobility at the workstation. Soft casters for hard floors, hard casters for soft floors.

LIGHTING

- [] Diffuse (indirect) lighting illuminates the work area. There are no "hot spots" or areas of high contrast and glare.
- [] Monitor screen installed at 90 degrees to windows and light sources.
- [] Windows should block the sun's light with blinds or curtains.
- [] Lighting is adequate for reading printed documents as well as the monitor screen--reading tasks require 35-40 foot-candles.

NOISE

- [] Printers should be kept quiet or operators should be protected from their noise. Printer noise should be controlled by isolating the printer, either away from work stations or in an accoustic covering.
- [] Background noise levels effecting workers should be controlled by sound absorbing materials.

INCREASING YOUR COMPUTER VOCABULARY

6670/Laser Printer

The IBM 6670 Information Distributor is both a photocopier and a printer. The letter quality laser printer's many type styles make it highly versatile. Because the IBM 6670 is attached to the central computer, it can be used from ATMS or RJE. Using some mainframe specifications, the 6670 can print certain types of pre-printed forms. For more information on the 6670, contact Text Processing at 444-2860.

Laser (light amplification by stimulated emission of radiation)

A device that emits a beam of coherent light that forms the image on the photoconductor that is transferred to paper.

ATMS (Advanced Text Management System)

Mainframe word processing system. ATMS allows users to create, edit, print, store, or retrieve documents. For more information on ATMS, contact Text Processing at 444-2860.

RJE (Remote Job Entry)

Submission of jobs through an input device that has access to a computer through a data link.

A device through which you can submit a job and print it locally.

TRAINING SCHEDULE

MAINFRAME CLASSES

BASIC TERMINAL SKILLS (ISD12): presented by Wendy Wheeler of the Information Center

DATE: April 25, 1985
TIME: 8:30 a.m. to 4:00 p.m.
PLACE: ISD Education Center, Room 14, Mitchell Building
COST: \$50.00
LIMIT: 8
PREREQUISITE: 3270nd (IIS class on terminal operation)
CANCELLATION DATE: April 18, 1985

Learn the basics of using a computer terminal. Become confident manipulating data using the SPF editor. Learn how to use the more common SPF Utilities. Know how to check your job status and output using SDSF. This course is a prerequisite for many other ISD classes.

INTRODUCTION TO SAS (ISD31): presented by Gary Wulf of the Information Center

LECTURE: April 17, 1985
TIME: 8:00 a.m. to 9:00 a.m.
FOLLOW-UP LAB: April 17
SESSION 1: 9:00 a.m. to noon
SESSION 2: 1:00 p.m. to 4:00 p.m.
PLACE: ISD Education Center, Room 14, Mitchell Building
COST: \$85.00 for lecture and lab
LIMIT: 8
PREREQUISITES: Basic Skills (ISD12) or equivalent terminal proficiency and a small real-life project to work on. The project must be evaluated for suitability before registration. Call Gary Wulf at 444-2555.
CANCELLATION DATE: April 10, 1985
INTENDED AUDIENCE: Users with no previous SAS experience who need a working knowledge of the basics of SAS.

Although SAS stands for Statistical Analysis System, it is a very powerful general purpose tool for capturing, editing, and reporting data. In just a few minutes, one can design and program a full screen data entry application for a terminal. While data are being entered, report and statistical programs can be coded for execution when data entry is complete.

This course is designed to accommodate busy state employees who have difficulty getting away from their jobs even to learn something to make their jobs easier. After a 1 hour introduction, students will begin working on their own projects. One instructor for every two students will be available to assist in design and coding. This will enable the students to see how SAS applies to their own jobs in a total of only four hours.

Optional (but highly recommended) 1-2 hour long special topics sessions will be given to expand on the basic course over the succeeding two weeks.

MAKING IT COUNT, AN INTRODUCTION TO COMPUTING (ISD11): presented by Wendy Wheeler of the Information Center.

DATES: April 29 thru May 8, 1985
TIMES: 1:00 p.m. - 4:00 p.m.
PLACE: ISD Education Center, Room 14, Mitchell Building
COST: \$50.00
LIMIT: 12
PREREQUISITES: none
CANCELLATION DATE: April 22, 1985

Is the computer age catching up to you? Making It Count presents a broad overview of data processing concepts and problems. Terminology is defined in context. Fundamentals of hardware, software, programming languages and systems analysis are covered.

INTRODUCTION TO DYL260 (ISD50): presented by Gary Wulf of the Information Center

DATE: May 22-May 23, 1985
TIME: 9:00 a.m. to 4:00 p.m.
PLACE: ISD Education Center, Room 14, Mitchell Building
COST: \$100.00
LIMIT: 10
PREREQUISITE: Basic Terminal Skills or equivalent, JCL helpful but not required
CANCELLATION DATE: May 15, 1985

DYL260 is three software packages in one: an extended utility, a data management system, and a report writer. Though normally a compile, load and go system, you may also store compiled programs in an executable library and run without recompilation if you wish, passing data to the program at run time.

Although it has the power and flexibility of a programming language, DYL260 is not intended as a replacement for an installation's standard programming languages. It is intended as a supplementary tool.

A DYL260 program can usually be coded (by providing parameters in fixed format) in a fraction of the time it takes to do the same problem in COBOL. It is ideal for those situations that require a quick response solution, such as one-time reports and file recoveries. It is equally useful in day-to-day data processing functions, such as file to file copy and backup, file dumps, and test file generation.

MICROCOMPUTER CLASSES

BEGINNING MICROCOMPUTER SKILLS (OA02): presented by the staff of the Information Center

DATE: April 12, 1985
CANCELLATION DATE: April 5, 1985

DATE: May 9, 1985
CANCELLATION DATE: May 2, 1985

TIME: 8:30 a.m. to 4:30 p.m.
PLACE: ISD Education Center, Room 14, Mitchell Building
COST: \$50.00
LIMIT: 8
PREREQUISITE: None

This course will give participants brief hands on experience with microcomputers. Topics to be covered:

- The machine
- The operating system
- Word processing
- Spreadsheets and graphics
- Data management
- Communications

All class time will be spent using microcomputers and software. The participant will learn what microcomputers can do and how to approach them. They will become familiar with the system. This course or its equivalent will be a prerequisite for many future microcomputer courses.

INTRODUCTION TO LOTUS 1-2-3 (OA12): presented by Wendy Wheeler of the Information Center

DATE: April 11, 1985
CANCELLATION DATE: April 4, 1985

DATE: May 14, 1985
CANCELLATION DATE: May 7, 1985

TIME: 8:30 a.m. to 4:30 p.m.
PLACE: ISD Education Center, Room 14, Mitchell Building
COST: \$50.00
LIMIT: 8
PREREQUISITE: Beginning Microcomputer Skills (OA02)

This course is designed for anyone with little or no previous 1-2-3 or microcomputing experience.

Introduction to LOTUS 1-2-3 will concentrate on 1-2-3 spreadsheet commands, design, basic what-if analysis and graphics. The more advanced features such as macro programming, one and two-way sensitivity analysis tables and database commands will be covered in the advanced course.

LOTUS 1-2-3 Advanced Features (OA21): presented by Ron Heilman of the Information Center

DATE: April 10, 1985
CANCELLATION DATE: April 3, 1985

DATE: May 15, 1985
CANCELLATION DATE: May 8, 1985

TIME: 8:30 a.m. to 4:30 p.m.
PLACE: ISD Education Center, Room 14, Mitchell Building
COST: \$50.00
LIMIT: 12
PREREQUISITE: Introduction to LOTUS (OA12) or equivalent knowledge and Beginning Microcomputer Skills (OA02)

This course is designed for anyone who is using 1-2-3 for basic spreadsheet work. Features not covered in the introductory class will be included. Advanced features such as macro programming, one and two-way sensitivity analysis tables and data base commands will be covered in detail.

ADVANCED WORDPERFECT (OA42): presented by Sheila Morasko of the Information Center

DATE: April 22 and April 23, 1985
TIME: 8:30 a.m. to 3:00 p.m. on April 22, 8:30 to noon on April 23
PLACE: ISD Education Center, Room 14, Mitchell Building
COST: \$75.00
LIMIT: 8
PREREQUISITE: Introduction to WordPerfect(OA18) or permission of the instructor
CANCELLATION DATE: April 15, 1985

For those already using WordPerfect, the advanced class will cover headers, footers, footnotes, macro programming, mail merge, columns, and spelling checks.

All WordPerfect classes are now taught using version 4.0. For update information, please call Sheila at 444-2973.

CROSSTALK XVI (OA25): presented by Dave Marshall of the Information Center

DATE: May 13, 1985
TIME: 8:30 a.m. to 4:30 p.m.
PLACE: ISD Education Center, Room 14, Mitchell Building
COST: \$50.00
LIMIT: 8
PREREQUISITE: Beginning Microcomputer Skills or equivalent
CANCELLATION DATE: May 6, 1985

Crosstalk XVI is a microcomputer communications software package. This course is designed to familiarize the user with asynchronous communications using a microcomputer and this software. It explores what can and cannot be done and how it is done. It will also teach the user how to use and configure Crosstalk XVI for communicating with remote computers. Most features of Crosstalk XVI (with the major exception of the script file command language) will be covered.

INTRODUCTION TO PFS: FILE AND REPORT (OA30): presented by Wendy
Wheeler of the Information Center

DATE: May 17, 1985
TIME: 8:30 a.m. to 4:30 p.m.
PLACE: ISD Education Center, Room 14, Mitchell Building
COST: \$50.00
LIMIT: 8
PREREQUISITE: Beginning Microcomputer Skills (OA02)
CANCELLATION DATE: May 10, 1985

PFS:FILE and REPORT are two easy-to-use, interrelated software packages.

FILE allows you flexibility in storing and retrieving information. Format design is simple and the program allows you to review, update, or print selected forms.

REPORT provides the capability of creating tabular reports from your existing PFS files.

Courses to look for in the next few months:

- Displaywrite 3
- Command Level CICS

And there will be more sessions of:

- Beginning Microcomputer Skills
- Introduction to LOTUS 1-2-3
- Advanced Features of LOTUS 1-2-3
- Basic Terminal Skills
- PFS
- WordPerfect

Please call Wendy at 444-2973 with requests for training.

Please call Wendy or Sheila in the Information Center (444-2973) if you have questions on the schedule.

To register for classes, please complete the following enrollment form and return it to Information Services.

FULL CLASS FEE WILL BE BILLED TO THE REGISTRANT UNLESS CANCELLATIONS
ARE MADE BY THE DEADLINE LISTED FOR EACH CLASS.

ISD ENROLLMENT APPLICATION
(FOR ALL COURSES)

PLEASE COMPLETE THE FOLLOWING APPLICATION AND RETURN
TO INFORMATION SERVICES DIVISION

COURSE: _____

DATE: _____

STUDENT: _____

AGENCY/DIVISION _____

PHONE: _____

ISD BILLING NO: _____

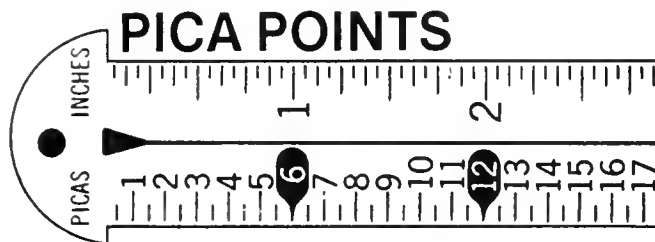
SOC SEC NO (FOR P/P/P): _____

AUTHORIZED SIGNATURE: _____

HAVE YOU MET THE PREREQUISITES FOR THIS COURSE? PLEASE EXPLAIN GIVING JOB
EXPERIENCE OR CLASS WHEN APPLICABLE

CHAPTER

1



CHAPTER 1 Pica Points will be seen from time to time as an addendum to ISD's *NEWS and VIEWS*. This issue discusses new and improved services in the area of typography (typesetting). CHAPTER 1 Pica Points will contain information and news from the Publications & Graphics Division.

Point of Interest Picas are the units of measure used in the printing industry, there are 12 points per pica and 6 picas per inch. A pica pole is the printer's equivalent of a ruler. Upon close examination of a pica pole you will find that 72 picas fall about 1 millimeter (3 points) short of 12 inches.

About Typesetting

New Service Typesetting can now be done through remote communication with almost any word processor, micro processor or personal computer. What this means is: if you have a document which was prepared on a word processor such as an IBM Display Writer, and you decide that you want it typeset for a high quality printing job, your document can be telecommunicated from your word processor to our typesetter front end system. This saves the cost of having the document keyboarded a second time, and also saves time and effort of re-proofing the document.

This new service is accessed by dial-up telephone asynchronous modem. There are word processor codes which must be removed from a document before communication time. There are also codes for our

typesetter front end system which should be inserted before communication to our system. Please note that although detailed proofing is not required after telecommunication, the resulting camera ready copy should be given an inspection prior to printing. In any case proofing is the responsibility of the customer. When a job is approved for printing, the customer has agreed to pay for the printing provided that the job specifications were met.

Improved Service Through the use of stored formats and by taking advantage of the powerful features of our Quadex Q-5000 computer front end system we are able to more efficiently typeset from remote communication than was previously possible. Documents which are repetitive in nature, such as directories, catalogs and lists can be typeset very efficiently, quite often with a minimum of paste-up effort.

The "improved services" apply to remote communications from the state main frame computer and also to communications received from various microcomputers, word processors and personal computers throughout the state. Documentation is currently being prepared for use of a collection of formats that were recently developed for State Lands during preparation of an environmental impact statement. The formats which are being documented were used to prepare the material that you are now reading with the "Pica Points" logo being the only exception.

High Speed, Low Cost Typesetting The Montana Legislative Council recently purchased an Autologic APS micro-5 high speed CRT digital photo-typesetter with a fifty typeface font library and an 800/1600 bpi magnetic tape drive. The Council has also purchased Data Retrieval Corporation's TIPE software which allows typesetter driver tapes to be generated on the state main frame computer. The typesetter driver tapes are then typeset using the new APS micro-5. The process of generating the driver tapes on the main frame is very efficient, fully paginated camera ready is produced at a cost of about thirty five cents per page (discount class) for six by nine inch pages. Typesetting with the APS micro-5 is also very efficient when using driver tapes generated on the main frame. We have not yet developed a rate structure for magnetic tape jobs on the APS micro-5, however, at this point, the following pricing appears to be appropriate: \$2.50 per six by nine inch page and \$4.30 per eight and a half by eleven inch page, with a minimum charge of \$15 per job.

Before text can be processed by TIPE it must be stored in the ALTER system. Typesetting with the APS micro-5 from magnetic tape is intended for large jobs such as directories or books, and extra large jobs like the multi-volume thirteen thousand page Montana Code Annotated.

We are not yet ready to provide support for this service, and training is not currently being offered. However, if sufficient interest is expressed by potential users of this new, powerful and efficient service then every effort will be made to provide training and support in a timely manner.

